

**REMARKS/ARGUMENTS**

Claims 1-21 are pending in this Application.

Claims 1 and 14 are currently amended. Applicants submit that support for the claim amendments and the newly added claims can be found throughout the specification and the drawings.

Claims 1-21 remain/are now pending in the Application after entry of this Amendment. No new matter has been entered.

In the Office Action, claims 1-21 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Application Publication No. 2004/044700 to Fisher et al. (hereinafter "Fisher").

**Claim Rejections Under 35 U.S. C. § 103(a)**

Applicants respectfully traverse the rejections to claims 1-21 and request reconsideration and withdrawal of the rejections under 35 U.S.C. § 103(a) based on Fisher. The Office Action alleges that the combination of references teach or disclose all of the claimed limitations of the corresponding claims and that one having ordinary skill in that art at the time of the invention would have been motivated to modify and/or incorporate undocumented teachings into Fisher.

Applicants, however, respectfully submit that a prima facie case of obviousness has not been established by the evidence presented in the Office Action. In order to establish a prima facie showing of obviousness, three requirements must be satisfied: all limitations of a pending claim must be expressly or impliedly disclosed by prior art references; there must be a suggestion or motivation in the art for the ordinarily skilled artisan to combine the limitations; and there must be a reasonable expectation of success in making such a combination. (M.P.E.P. § 2143).

Applicants respectfully submit that, based on the discussion below, Fisher, either individually or in combination with the alleged undocumented teachings, fails to teach or suggest at least one of the claim limitations recited in each of claims 1-21.

**Claim 1**

Claim 1 recites a method for quantifying an impact of wasteful operations in a database. The method recited in claim 1 includes:

receiving one or more operations that are determined to be wasteful when performed in the database;  
detecting when wasteful operations are being performed in the database;  
recording a time value that is spent on the wasteful operation; and  
storing the time value, wherein the time value is used to quantify the impact of a performance problem in the database.

As recited above, one or more operations are received that are determined to be wasteful when performed in a database. Operations that have been determined to be wasteful are detected when they are being performed in the database. A time value for time spent on a wasteful operation is recorded and stored, and as a result the impact of a performance problem in the database is quantified using the recorded time value for time spent on the wasteful operation.

Applicants respectfully submit that Fisher does not teach or suggest each and every limitation of the method of claim 1 for quantifying an impact of wasteful operations in a database. The method of claim 1 results in quantifying the impact of a performance problem in the database. Instead, Fisher is directed to recovery within a virtual storage library from disasters that destroy state information within a library manager. (Fisher: Abstract; Paragraph [0009], lines 6-11). In Fisher, information within a virtual storage server is used to streamline the check-in process for volumes that were in an operational state previous to a disaster. (Fisher: Abstract; Paragraph [0008]; Paragraph [0010]; Paragraph [0035]; Paragraph [0046]; Paragraph [0048]). Thus, Fisher discloses that a faster disaster recovery (i.e., to rebuild state information) may be attained by leveraging the information available for previously operational volumes within the virtual storage server and communicating that information to the library manager. (Fisher: Paragraph [0010]). Fisher's disaster recovery process has nothing to do with quantifying performance problems in a database as recited in claim 1.

Furthermore, Applicants respectfully submit that using redundant information to rebuild state information in Fisher does not teach or suggest the method of claim 1 for

quantifying an impact of wasteful operations performed in a database. Fisher is merely directed to speeding up the process of recovering state information, e.g., information about volumes that were in an operational state prior to a disaster, without having to unnecessarily access the physical volumes. (Fisher: Paragraph [0035], lines 12-14). Rebuilding a database without performing operations to access physical volumes in Fisher is substantially different from the method of claim 1 for quantifying an impact of wasteful operations being performed in a database. Accordingly, Applicants respectfully submit that Fisher has nothing to do with quantifying an impact of wasteful operations in a database as the method recited in claim 1.

Receiving one or more operations

Amended claim 1 recites, in part, receiving one or more operations that are determined to be wasteful when performed in a database. Thus, as recited, one or more operations, such as reading data or writing data, are received that are determined to be wasteful when performed in the database. In various embodiments, Applicants disclose that users 108 send requests for operations to be performed in database 106. In the example, the operations include reading data in database 106, writing data to database 106, updating data in database 106, etc. In another example, the requests include SQL statements that cause operations to be performed in database 106. (Application: Paragraph [0029]).

Operations that, when performed in database system 105, may be wasteful are determined. In one embodiment, a wasteful operation is an operation that may be attributed to some type of performance problem. For example, a wasteful operation may be an operation that does not need to be performed. Also, a wasteful operation may be an operation that may be performed more efficiently if performed in a different way. In one embodiment, operations that may be considered wasteful include hard parses, soft parses, configuration problems, improperly sized caches, and other operations are listed in Appendix A. It will be understood that other operations may be appreciated. (Applicant: Paragraph [0043]).

Applicants respectfully submit that Fisher fails to teach or suggest the feature of “receiving one or more operations that are determined to be wasteful when performed in the

database” as recited in claim 1. In the Office Action, the Examiner points to Paragraph [0035] of Fisher as allegedly disclosing the above limitation. Applicants respectfully disagree.

Paragraph [0035], lines 1-4 of Fisher disclose that in the prior art library manager recovery method of FIG. 2 of Fisher, after volumes are inventoried, a check-in process is conducted for each volume present. However, Applicants fail to see how the process in Fisher where each and every storage volume is merely inventoried and checked-in teaches or suggests receiving one or more operations that are determined to be wasteful when performed in a database as recited in claim 1.

The operations of inventorying and checking-in physical volumes in Fisher have nothing to do with operations performed in a database as recited in claim 1. Merely performing the operations of inventorying and checking-in physical volumes does not teach or suggest receiving one or more operations that are determined to be wasteful when performed in the database as recited in claim 1.

Furthermore, Paragraph [0035], lines 4-6 of Fisher suggest that the prior art library manager recovery method of FIG. 2 of Fisher does not coordinate with a virtual storage server or host to “eliminate unneeded processing.” (Fisher: Paragraph [0035], lines 4-6). Fisher then suggests that a database record must be created for each physical volume. (Fisher: Paragraph [0035], lines 7-9). Fisher then suggests that “such knowledge” (i.e., the database record for each physical volume) may already reside within the virtual storage server or host. (Fisher: Paragraph [0035], lines 9-11). Thus, Fisher discloses that a stream-lined process (for checking in volumes that were in an operational state prior to a disaster) uses any information (e.g., the database record in the virtual storage server) to eliminate unnecessary access to the physical volumes. (Fisher: Paragraph [0035], lines 12-14). Therefore, the “unneeded processing” in Fisher is accesses to physical volumes to recover from lost state information, where that state information is present somewhere else. Eliminating unnecessary operations to access physical volumes in Fisher is substantially different from received operations as recited in claim 1 that are determined to be wasteful when performed in a database. Furthermore, if the database record must be created in Fisher, then the operation of creating the database record in Fisher is necessary, and does not teach or suggest a wasteful operation as recited in claim 1.

Detecting when wasteful operations are being performed

Amended claim 1 recites, in part, detecting when wasteful operations are being performed in the database. In the Office Action, the Examiner again points to Paragraph [0035] of Fisher as allegedly disclosing the above limitation. Applicants respectfully disagree.

As discussed above, Paragraph [0035] of Fisher has nothing to do with wasteful operations being performed in a database as recited in claim 1. The prior art method of recovery in Fisher involves operations to access physical volumes which do not teach or suggest operations being performed in a database as recited in claim 1.

Moreover, while the prior art method of disaster recovery in FIG. 2 of Fisher includes “unnecessary processing” to access physical volumes, the unnecessary processing of Fisher relates to the check-in of every volume that was in an operational state prior to a disaster, which are substantially different from wasteful operations that are being performed in a database as recited in claim 1. Furthermore, the prior art recover method of FIG. 2 of Fisher merely performs the check-in process, and does not teach or suggest detecting when wasteful operations are being performed in the database as recited in claim 1. Accordingly, Applicants respectfully submit that Fisher fails to teach or suggest detecting when wasteful operations are being performed in the database as recited in claim 1.

Recording a time value

As discussed above, a wasteful operation as recited in claim 1 is detected when being performed in a database. Amended claim 1 further recites, in part, recording a time value that is spent on the wasteful operation. In the Office Action, the Examiner points to Paragraph [0044] of Fisher as allegedly disclosing the above limitation. Applicants respectfully disagree.

Paragraph [0044] of Fisher merely provides a simplified flowchart of the improved library recovery method of Fisher. (Fisher: Paragraph [0044], lines 1-3). In Fisher, the improved library manager recovery method 400 avoids a lengthy check-in process for selected physical volumes. (Fisher: Paragraph [0044], lines 3-5). The method 400 includes an inventory physical volumes step 410, a check-in previously operational volumes step 420, and a

check-in new volumes step 430. (Fisher: Paragraph [0044], lines 5-8). The improved library manager recovery method 400 may be conducted in conjunction with the library manager 350 and the virtual storage server 300. (Fisher: Paragraph [0044], lines 8-10).

As can be seen in the above paragraph, the process of Fisher includes an inventory step (i.e., 410), a check-in previously operational volumes step (i.e., 420), and a check-in new volume step (i.e., 430). Applicants fail to see where Fisher discloses a step that allegedly teaches or suggests recording a time value that is spent on the wasteful operation as recited in claim 1.

The Examiner also concludes that it would have been obvious to include a timestamp in Fisher to provide a physical time for the recovery and improvement of data from the lost database. However, Fisher is directed to avoiding unnecessary access to physical volumes. Thus, Fisher eliminates accesses to physical volumes where the information can be retrieved from another source (thereby not performing those accesses) to reduce recovery time. However, the wasteful operation in claim 1 is performed, and a time value is recorded for time spent on the wasteful operation.

Additionally, providing a timestamp in Fisher would allow the determination of the recovery time for operations performed that were necessary to recover from the disaster. Recording the time of operations performed that are necessary to recover from a disaster in Fisher does not teach or suggest recording a time value that is spent on the wasteful operation performed in a database as recited in claim 1.

#### Storing the time value

Finally, amended claim 1 recites, in part, storing the time value, wherein the time value is used to quantify the impact of a performance problem in the database. In the Office Action, the Examiner points to Paragraphs [0029] and [0044] of Fisher for its teaching as allegedly disclosing the above recited feature. Applicants respectfully disagree.

Paragraph [0029] of Fisher is reproduced below:

[0029] In one embodiment, the accessor 114 is an automated mounting device configured to transport a selected physical volume 116 between a storage bin 117 and a storage unit

112. In another embodiment, the accessor 114 is an interface unit that directs operators to mount and dismount physical volumes 116 on the removable media storage units 112. An automated accessor 114 typically includes a cartridge gripper and a bar code scanner, or similar read system, mounted on the gripper. The bar code scanner is used to read a volume serial number (VOLSER) printed on a cartridge label affixed to the cartridge 116.

Applicants again fail to see where a time value that is spent on the wasteful operation is stored as recited in claim 1 by the automated mounting device of Fisher. Merely transporting physical volumes between storage bins, mounting/dismounting physical volumes, and reading barcode in Fisher does not teach or suggest storing a time value that is spent on a detected wasteful operation performed in a database as recited in claim 1.

Furthermore, as discussed above, Paragraph [0044] of Fisher merely discloses the improved recovery steps, and does not teach or suggest a time value as recited in claim 1, or using a time value to quantify the impact of a performance problem in the database as recited in claim 1.

In light of the above, Applicants respectfully submit that claim 1 is patentable over the cited references.

### **Claims 2-21**

Applicants submit that independent claims 8, 13, 14, and 18 are allowable for at least a similar rationale as discussed above for the allowability of claim 1, and others.

Applicants submit that dependent claims 2-7, 9-12, 13-17, and 19-21 that depend directly and/or indirectly from the independent claims 1, 8, 14, and 18 respectively, are also allowable for at least a similar rationale as discussed above for the allowability of the independent claims.

Applicants further submit that the dependent claims recite additional features that make the dependent claims allowable for additional reasons.

**CONCLUSION**

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-326-2400.

Respectfully submitted,

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